WE CLAIM:

1. A method for providing location assistance information to a mobile station of a communications network, the method comprising the steps of:

estimating visibilities of a plurality of satellites with respect to a mobile station, said plurality of satellites being satellites of a satellite positioning system,

selecting a group of said plurality of satellites with best estimated visibilities with respect to the mobile station, and

sending to the mobile station location assistance information relating to at least said group of satellites.

2. The method as defined in claim 1, wherein, in the selecting step, said group of satellites includes a predetermined number of satellites.

3. The method as defined in claim 1, wherein, in the sending step, location assistance information relating to said group of satellites is sent in a location assistance message.

4. The method as defined in claim 1, wherein, in the sending step, location assistance information relating to said group of satellites is sent using a plurality of location assistance messages, each location assistance message of said plurality of location assistance messages including information about one satellite of said satellite positioning system.

5. The method as defined in claim 1, wherein, in the sending step, location assistance information relating to said group of satellites is sent in response to receipt of a location assistance information request from the mobile station.

6. The method as defined in claim 1, wherein, in the sending step,

location assistance information relating to said group of satellites is sent periodically.

7. The method as defined in claim 1, wherein, in the sending step, location information relating to said group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

8. The method as defined in claim 1, further comprising the step of:

selecting a further group of satellites with the next best estimated visibilities with respect to the mobile station.

9. The method as defined in claim 8, wherein, in the sending step, location assistance information relating to said group of satellites is sent to the mobile station before location assistance information relating to said further group of satellites.

10. The method as defined in claim 8, wherein, in the sending step, location assistance information relating to said group of satellites is sent in a first location assistance message and location assistance information relating to said further group of satellites is sent in a second location assistance message.

11. The method as defined in claim 8, wherein, in the sending step, location assistance information is sent using a plurality of location assistance messages, each location assistance message of said plurality of location assistance messages including information about one satellite of said satellite positioning system.

12. The method as defined in claim 8, wherein, in the sending step, location assistance information relating to said group of satellites is sent in

response to receipt of a location assistance information request from the mobile station.

13. The method as defined in claim 12, wherein, in the sending step, location assistance information relating to said further group of satellites is sent to the mobile station upon a request for location assistance information relating to said further group.

14. The method as defined in claim 8, wherein, in the sending step, location assistance information relating to said group of satellites is sent periodically.

15. The method as defined in claim 14, wherein, in the sending step, location assistance information relating to said further group of satellites is sent as often as location assistance information relating to said group of satellites.

16. The method as defined in claim 14, wherein, in the sending step, location assistance information relating to said further group of satellites is sent less often than location assistance information relating to said group of satellites.

17. The method as defined in claim 8, wherein, in the sending step, location information relating to said group of satellites and to said further group of satellites is sent in an order dependent on the estimated visibilities with respect to the mobile station.

18. The method as defined in claim 1, wherein, in the selecting step, said group of satellites contains between three and four satellites of the satellite positioning system.

19. The method as defined in claim 1, further comprising the step of:

estimating visibilities of the satellites based on elevation angles of the satellites with respect to an estimated location of the mobile station.

20. The method as defined in claim 19, wherein, in the estimating step, obstructions in a vicinity of the estimated location of the mobile station are taken into account in estimating visibilities of the satellites with respect to the mobile station.

21. The method as defined in claim 1, wherein, in the sending step, said location assistance information is for a mobile-assisted location method.

22. The method as defined in claim 1, wherein, in the sending step, said location assistance information is for a mobile-based location method.

23. A network element for providing location assistance information to a mobile station of a communications network, the network element comprising:

a processor for estimating visibilities of a plurality of satellites with respect to a mobile station, said plurality of satellites being satellites of a satellite positioning system,

a controller for selecting a group of said plurality of satellites with best estimated visibilities with respect to the mobile station, and

a transmitter for sending to a mobile station location assistance information relating to at least said group of satellites.

24. The network element as defined in claim 23, further comprising:

a receiver for receiving location assistance information relating to satellites of said satellite positioning system.

25. The network element as defined in claim 23, wherein the network element is a location server.

26. A communications system for providing location assistance information, the system comprising

at least one reference receiver of a satellite positioning system for obtaining location assistance information relating to satellites of the satellite positioning system,

means for estimating visibilities of a plurality of satellites of the satellite positioning system with respect to a mobile station,

means for selecting a group of said plurality of satellites with best estimated visibilities with respect to the mobile station, and

means for sending to the mobile station location assistance information relating to said group of satellites.

27. The communications system as defined in claim 26, wherein said means for estimating visibilities of satellites with respect to the mobile station are provided in a location server.

28. The communications system as defined in claim 26, wherein said means for estimating visibilities of satellites with respect to the mobile station are provided in a number of network elements.